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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,483	11/01/2001	Antonio L. P. Rotondaro	TI-31133	1903

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EXAMINER
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ESTRADA, MICHELLE

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 08/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/001,483

Applicant(s)

ROTONDARO, ANTONIO L. P.

Examiner

Michelle Estrada

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 May 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-11 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nambu et al. (6,475,815) in view of Ohnuma (6,465,288).

With respect to claim 1, Nambu et al. disclose providing a silicon substrate with an upper surface; forming an amorphous region in said upper surface by exposing said upper surface to halogen species (Col. 3, lines 5-9).

Nambu et al. do not disclose forming a dielectric layer on said amorphous region.

Ohnuma discloses forming an amorphous silicon film (103) and forming a thin oxide film on the surface of the amorphous silicon film (Col. 9, lines 25-29).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Nambu et al. and Ohnuma to enable the oxide formation step of Ohnuma to be performed in the process of Nambu et al. because the oxide film improves the wettability for any subsequent solution added to crystallize the amorphous layer.

With respect to claim 4, Ohnuma discloses that said dielectric layer is formed on the surface of the amorphous silicon film by irradiating with UV light in an oxygen

atmosphere (Col. 9, lines 25-30), therefore it is obvious that said dielectric layer is a silicon oxide layer.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nambu et al. (6,475,815) in view of Ohnuma (6,465,288) as applied to claims 1 and 4 above, and further in view of Ghandhi (non-patent literature).

The combination of Nambu et al. and Ohnuma does not disclose further comprising removing a dielectric layer from said upper surface prior to forming said amorphous region.

Ghandhi discloses that all semiconductor wafers must receive an initial cleaning and further cleaning must be done after each processing step in the fabrication sequence. As far as possible, the same cleaning process should be used at each point, and made routine as possible (Page 518, 3<sup>rd</sup> full paragraph).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Nambu et al., Ohnuma and Ghandhi to enable the cleaning step of Ghandhi to be performed in the process of the combination of Nambu et al. and Ohnuma in order to avoid operator error.

#### ***Allowable Subject Matter***

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5-11 allowed.

The following is an examiner's statement of reasons for allowance: with respect to claims 5-9, there is no disclosure in the prior art of forming a capping layer on said amorphous layer and forming a dielectric layer on said capping layer.

With respect to claims 10 and 11, reasons for allowance were given in the Office Action mailed 11/20/02.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is 571-272-1858. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2823

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2800.

A handwritten signature in black ink, reading "Michelle Estrada". The signature is fluid and cursive, with the first name "Michelle" being more prominent than the last name "Estrada".

Michelle Estrada  
Examiner  
Art Unit 2823

ME

August 2, 2004